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PATENT APPLICATION  
10/047,332



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Ee Hong Kwek et al.  
Serial No.: 10/047,332  
Filing Date: January 14, 2002  
Examiner: Arnold M. Kinkead  
Art Unit: 2817  
Title: VOLTAGE-CONTROLLED OSCILLATOR CIRCUIT FOR  
DIRECT MODULATION

7/21/03  
1/31/03  
JLH

Commissioner of Patents  
PO Box 1450  
Alexandria, VA 22313-1450

RECEIVED  
JUL 23 2003  
TECHNOLOGY CENTER 2800

Dear Sir:

RESPONSE PURSUANT TO 37 C.F.R. § 1.111

In response to the Office Action mailed April 23, 2003, Applicants respectfully request the Examiner to reconsider the rejection of the claims in view of the following amendments and the comments as set forth below.

07/21/2003 GGEBREGI 00000109 10047332

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90.00 OP

DAL01:740288.1

**AMENDMENTS TO THE SPECIFICATION**

Please replace the paragraphs beginning at page 14, line 2 through line 13 with the following single paragraph:

--A VCO circuit for a fractional-n PLL circuit is described for implementing a direct modulation scheme. An embodiment of the invention provides a bank of switchable capacitors used to stringently control the gain of the VCO (KVCO). The capacitors provide the stringent control necessary for direct modulation. The bank of switchable capacitors is used to coarsely tune the VCO circuit. A linear capacitor is placed in series with the varactor to linearize the frequency/capacitance response of the varactor. The capacitor also serves to isolate a reference voltage that is used to bias the varactor diode to ensure the linear range of the varactor is within the voltage range of the VCO circuit power supply. The varactor is used for fine tuning of the VCO circuit. For one embodiment the input voltages to the VCO are across a resistance value sufficient to dampen noise picked up through an external loop filter.--